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| Terry Crowell | CDM Libby Sample Coordinator | CDM – Libby, Montana |

LBAS Troy D.U.
38-06-08-03-02

Troy TAPZ

- Deleted:** Project Manager
- Deleted:** Department of Transportation
- Deleted:** Institute
- Deleted:** Boston
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**TABLE 2-1
(Continued)**

KEY PERSONNEL

| Name | Organization | Role | Responsibilities | Contact Information |
|------------------|---------------------|--|--|---|
| Jessica Allewalt | Tetra Tech | Troy Field Sample Coordinator | <ul style="list-style-type: none"> Responsible for working with TAPE project manager and TAPE field team leader to schedule TAPE inspections Responsible for compiling and organizing field data sheets and samples submitted daily by field teams. Enters field data hard copy information into electronic format for transfer to Volpe and EPA Sign custody release of samples to CDM and EPA on a regular basis Coordinate with CDM, EPA, and Volpe managers on sample delivery schedules and logistics Reviews laboratory data before release to project team Disseminate project information packets to interested parties and Troy property owners and direct questions to TAPE PM or DEQ/RD | Tetra Tech, Helena, MT 7 West 6 th Avenue Helena, MT 59601 jessica.allewalt@ttemi.com (406) 442-5588 |
| Brett Veltri | Tetra Tech | On-site TAPE Safety Officer | <ul style="list-style-type: none"> Responsible for implementing health and safety plan and for determining appropriate site control measures and personal protection levels Conducts safety briefings for Tetra Tech and site visitors Can suspend operations that threaten health and safety Disseminate project information packets to interested parties and Troy property owners and direct questions to TAPE PM or DEQ/RD | Tetra Tech, Helena, MT 7 West 6 th Avenue Helena, MT 59601 brett.veltri@ttemi.com (406) 442-5588 |
| Ed Madej | Tetra Tech | Database and Geographic Information System Manager | <ul style="list-style-type: none"> Responsible for developing, monitoring, and maintaining project database and property maps Responds to requests from TAPE project manager and TAPE field team leader to provide copies of property maps to field teams on a daily basis Works with CDM, Volpe, and EPA data and graphic managers to generate needed reports and maps from the Libby V2 database | Tetra Tech, Helena, MT 7 West 6 th Avenue Helena, MT 59601 ed.madej@ttemi.com (406) 442-5588 |

Comment [PC1]: What kind of electronic format are you talking about. We have an Access application call eLASTIC that is used by the field people to enter CoC and FSIDS information and then they export the data and email it to Volpe.

Deleted: CDM

TABLE 3-1 (continued)

DATA QUALITY OBJECTIVES
INVESTIGATION OF TROY PROPERTIES

STEP 7: Optimize the Sampling Design

- All properties in the Troy OU will be uniquely defined in the work plan, and their locations will be identified using existing Lincoln County records, cadastral databases, and low-level aerial photographs. The number of Troy properties to be investigated will be approximately 1,000. Some houses and buildings likely are on multiple platted properties.
- Dust and soil samples will be collected using similar methods and standardized procedures that have been employed for the Libby Asbestos Superfund site. With more than 4,000 Libby properties sampled since 2001, the methods have been defined (CDM 2002; CDM 2003a; CDM 2003b; EPA 2003a).
- Field QA/QC procedures will be implemented and will include equipment decontamination, QA samples, field documentation, and sample chain of custody. Scientifically valid and legally defensible data will be supported by collection of dust and soil field blanks and other QA samples at a frequency necessary to assess potential cross contamination from equipment and sample integrity during collection.
- Additional building and property details will be collected to support the pre-design inspections when visible triggers are noted during the TAPE inspection. Details may include, but are not limited to:
 - Attics – type of attic; entry locations; vents; barriers in attic; dimensions; and approximate volume of VCI,
 - Living spaces – number and types of rooms and hallways; ceiling conditions; and electrical, mechanical, and plumbing systems,
 - Exterior – site sketches of existing landscape, improvements, and potential additional sample locations,
 - Outside staging areas and electric service.
- Field sample data sheets, similar to those used in Libby, will be completed for each sample collected and each property inspected within the Troy OU. The field data sheet information will be recorded onto the eLASTIC application so that data can be easily uploaded to the existing Libby V2 database.
- Dust and soil samples collected at each Troy property will be uniquely labeled, and sampling information will be recorded onto the eLASTIC application. The electronic sample records, along with the samples, will be transferred under chain-of-custody procedures to a CDM sample data coordinator, who will verify completeness and accuracy of the records.
- Montana DEQ and its contractor, Tetra Tech, will work closely with EPA, Volpe, and its contractor, CDM, to ensure that sample integrity is maintained throughout and that data quality is adequate to meet project objectives.
- CDM will transfer the electronic sampling and field form information to EPA and Volpe and prepare the samples for analysis.
- Figure 3-3 provides a schematic diagram of the TAPE process used by Tetra Tech to organize, conduct the property evaluations and sampling, and provide samples and electronic information to CDM, EPA, and Volpe.

Deleted: electronic records that

Deleted: added

Comment [PC2]: See the 1st comment

Deleted: electronic

Deleted: records

Comment [PC3]: Email the data fiels and fax all paper forms to Volpe. I do not believe that EPA gets copies of this stuff.

4.0 FIELD PROCEDURES

This section of the Troy work plan describes the field activities to be implemented for the TAPE inspection and sampling project and includes the following tasks:

- Mobilizing and demobilizing
- Obtaining access agreements
- Scheduling inspections with property owners
- Conducting verbal interviews
- Conducting property inspections – indoor, attic, outbuildings, outdoor, yard, specific use areas (using the inspection field form [IFF])
- Collecting indoor dust samples (recorded on field sampling data sheet [FSDS])
- Collecting outdoor soil samples (recorded on the FSDS)
- Collecting QA/QC samples
- Decontaminating equipment and personnel
- Containing and disposing of investigation-derived waste

SOPs are provided in Appendix B and are referenced throughout this section of the TAPE work plan. As appropriate, Tetra Tech personnel will use guidance developed specifically for the Libby Asbestos Superfund Site. Some of the Libby-specific guidance documents are listed below and copies are provided in Appendix B.

- CDM-Libby-03 (Revision 1) Completion of Field Sampling Data Sheets (FSDS)
- CDM-Libby 04 (Revision 1) Completion of Information Field Form
- CDM-Libby 05 (Revision 1) Site-Specific Standard Operating Procedure for Soil Sample Collection

Comment [PC4]: Shouldn't you have a sample of the FSDS in the appendix? We need to make sure that you are using the same forms with the same kinds of data.

Comment [PC5]: This guidance doc is good for Libby but needs to be modified for Troy. If you follow it exactly the data will not be record in the database correctly.

Health and safety protocols and requirements will apply to all field activities and are summarized below. Information on quality control is provided in Sections 5.0 and 7.0 of this work plan.

4.1 HEALTH AND SAFETY PROCEDURES

The TAPE HASP (Appendix A) and Tetra Tech's corporate health and safety program plan will apply to all field activities undertaken as part of this project. All field staff conducting inspection and sampling activities will be required to:

1. Hold a current OSHA hazardous waste operations (HAZWOPER) 40-hour training certification and up-to-date 8-hour refreshers, as required under 29CFR1910.120;

BD - 6#
AD - 6#
SP - Sample point
6# tied to 6#5
Sample 1.B - analytical
TT - XXXXXX

with a unique identification number that starts with the notation "BD-XXXX," where "BD" indicates a building location, and will also be recorded by the field team on the IFF and in the field log book.

Comment [PC6]: At the last meeting I thought it was decided that Troy would use its own designations and not the ones that Libby is using. Troy prefixes need to be unique. It would be a nightmare trying to coordinating all the numbers so that Libby and Troy do not use the same numbers. Same goes for sample index ids. All prefixes are one or two characters long and Troy should all start with T

4.4.2 Indoor Dust Sampling

Dust samples will be collected using microvacuum (microvac) sampling techniques in all primary buildings, regardless of whether VCI is observed. Dust samples will be collected in secondary buildings only if the building was reportedly used to store VCI or if VCI is observed. Dust samples will be collected following the procedures provided in American Society for Testing and Materials (ASTM) *Standard Test Method for Microvacuum Sampling and Indirect Analysis of Dust by Transmission Electron Microscopy for Asbestos Structure Number Concentrations* (D 5755-95). A copy of this standard ASTM method is provided in Appendix B, with site-specific applications described below (ASTM 1995).

The decision to use microvac sampling, rather than wipe sampling, for the TAPE inspection and sampling was based primarily on the need to collect data that are consistent with data collected for the Libby Asbestos Superfund Site. EPA, and its contractor CDM, have used microvac sampling methods to collect the indoor dust samples in Libby. Microvac sampling methods are assumed to collect samples that more accurately measure releasable asbestos fibers when compared with wipe samples. Each indoor dust sample will be composed of a three-point composite sample, as described in the above-mentioned ASTM standard (ASTM 1995).

4.4.2.1 Select Sampling Locations

The TAPE field team will select sample locations based on the team's visual inspection of the buildings and estimation of where contaminated dust is most likely to be found. The number and locations of dust samples will be selected as described below.

Primary Buildings

Dust samples will be collected in every primary building regardless of whether VCI was observed during the visual inspection, unless the property owner declines sampling.

- Two dust samples will be collected on each level of the building's living space (including finished basements):

spoon. During sample collection and mixing, the field team will attempt to shield the soil samples from the wind to avoid potentially losing lighter fractions of the soil to the ambient air.

The Ziploc bag will be placed inside a second bag as a precaution. The outer Ziploc bag will be labeled using the pre-printed sample labels for shipment. Chain-of-custody procedures will be followed as described in Section 5.5.2.

The field team will attempt to restore the land surface to its prior condition after sampling, but Tetra Tech will not be responsible for re-laying sod or replanting. It is not envisioned that sampling will require large-scale disturbance of yards, since the sample size required is small.

4.4.4.3 Record Sample Location on Troy Property Map and with GPS

The field team will mark each soil subsample location on the Troy property map with labeling to indicate the composite sample for which the subsample was collected. A backpack-mounted Trimble XRS-Pro GPS will be used to record the midpoint subsample location for each composite soil sample. The GPS location coordinates will be recorded on the GPS unit with a unique identification number that starts with the notation "TSP-XXXX" where "TSP" indicates a "Troy Sample Point" soil sample. The GPS coordinates will also be recorded in the FSDS and field logbook for backup and verification of sample locations.

Comment [PC7]: Where is this TSP - being recorded? The database only allows two characters before the number unless this is not what I think it is. If this is only a GPS coordinate number than it might be okay. Soil sample locations for Libby have SP for a prefix. Troy needs to use a two character prefix i.e. TS.

4.4.5 Photography

Each TAPE field team will have a camera for photo-documenting the conditions at a property, if the conditions are not readily described in writing or if, in the judgment of the field team, photographs may assist in development of a remedial action plan for that property. Permission from the property owner will be obtained before any photograph is taken, other than for photographs taken from the public right-of-way.

All photographs will be recorded in the field logbook and on the IFF, and on the property map using the following symbol to indicate the position where the photograph was taken and the direction it was taken (↔). No accurate distance scales will be used for landscape photographs, but general distances can be estimated by noting the location where the photograph was taken. All photographs will be taken using digital cameras and will be download the same day at the Troy Tetra Tech field office and saved.

Photocopies of all field forms and appropriate log book pages in each individual property file will be maintained in the Troy field office for the duration of the TAPE project so that information is available if questions arise. The original forms will be stored in the Tetra Tech office in Helena, Montana, for the duration of the sampling, inspection, and reporting phases of the TAPE project. The original forms will be transferred to DEQ at the end of the TAPE project. Copies of the field forms and field logbook will be available on request at any time during the TAPE project to DEQ, EPA, or to the Troy property owners.

After the field forms have been received from the TAPE field teams, the Tetra Tech field sample coordinator will manually enter the information into electronic format for ultimate transfer to the Libby V2 database. The Tetra Tech field sample coordinator will verify that the data were entered and correct and then transfer the electronic data to the CDM Troy coordinator, along with hard copies of the field forms and the associated dust and soil samples collected for the Troy properties. The CDM Troy coordinator will conduct a 100 percent data check to ensure that all information has been entered correctly. When the data check is complete, the CDM Troy coordinator will export the data to the Libby V2 database, via Volpe.

Comment [PC9]: Shouldn't you call this the eLASTIC application?

Comment [PC10]: And email to Volpe for upload into the VA database. Someone needs to fax all the FSDS, COC and surveys to Volpe.

At the end of each day, or more often if needed, the TAPE field teams will return to the Troy Tetra Tech field office to complete chain-of-custody forms for all dust and soil samples, including QC samples, collected earlier. Until they have been transferred to the CDM Troy coordinator, all TAPE dust and soil samples will be held by Tetra Tech. Samples may be stored in locked vehicles or in a secured (locked) area of the Troy Tetra Tech field office. All TAPE dust and soil samples collected from the Troy properties, including QC samples, will be transferred along with a signed chain of custody form to the CDM Troy coordinator at least on a weekly basis. The CDM Troy coordinator will be required to sign the chain of custody forms to acknowledge receipt of the samples. The CDM Troy coordinator will provide Tetra Tech with a copy of this chain of custody. The CDM Troy coordinator will then transfer the samples to the laboratory for preparation and analysis.

Digital photographs will be downloaded daily to a computer at the Tetra Tech Troy field office. Photographs will be downloaded and labeled using a standard labeling procedure that is based on property-specific ID numbers.

6.0 DATA MANAGEMENT

Data management during the inspection and sampling will be under the supervision of the Tetra Tech TAPE field sample coordinator in the Troy field office. At the conclusion of inspection and sampling, that responsibility will pass to the Tetra Tech TAPE project manager.

6.1 DATA REQUISITION

The laboratory will report all analytical data to CDM, and put that data into the Libby V2 database. Tetra Tech and DEQ will obtain sampling data from the Libby V2 database by requesting that data from Volpe (through EPA) on a standard information request form. Tetra Tech will request the following information from the Libby V2 database for each sample, including QC samples, collected during the TAPE project:

Comment [PC11]: The lab results are emailed to Volpe. Volpe loads them into the database. CDM does not oversee integration of the data.

Deleted: CDM will oversee integration

- Sample location
- Sample name
- Sample date
- Sample results
- Identification numbers, dates, and results for laboratory quality control samples

Volpe will provide this information (through EPA) in the standard Libby V2 data report format. All other information necessary for reporting purposes will be obtained from Tetra Tech internal files (copies of IFFs, FSDSs, property sketches, and log books).

6.2 DATA REPORTING

Data from the Libby V2 database will be obtained through a geographic information system interface software (ArcView). This interface will provide maps showing all TAPE sample locations. Dust and soil sampling results will be provided from the Libby V2 database in tabulated form, as Microsoft Access files. Tetra Tech will prepare a TAPE project report that describes the activities conducted, the results of the property inspections, and the results of the sampling, evaluates data quality, and recommends follow-up actions. The TAPE project report will include maps for each property where asbestos in soil or in dust exceeded screening levels. TAPE project maps will show sample locations and results for the property and delineate the areal extent of asbestos.

Comment [PC12]: Who is providing the maps to be loaded into the database?

7.0 QA/QC PROCEDURES

The TAPE quality objectives, QC checks and samples, and audits completed for the TAPE project are described in the sections below. Field quality control procedures are described in Section 5.0 above.

7.1 QA/QC OBJECTIVES

The quality objectives of the TAPE project are to obtain 100 percent usable and accurate data. These data will be achieved through inspection and sampling using standardized field forms and procedures, auditing field operations, observing chain of custody procedures, and analyzing field quality control samples and laboratory quality control samples. The DQOs are further discussed in Section 3.0 of this work plan.

7.2 INTERNAL QC CHECKS

When laboratory analytical data are received, Volpe will conduct a thorough quality review of that data. Volpe will review data from both laboratory QC samples described below and field QC samples described in Section 5.2. Standard protocols exist for validation of soil samples analyzed by PLM for asbestos and will be followed. Standard protocols do not exist for validation of dust samples for asbestos; however, Volpe (and EPA) will follow the QC review procedures for dust data established at the Libby Asbestos Superfund Site. Volpe will prepare validation and review packages for all TAPE data and will transmit the reports to Tetra Tech to be included in the TAPE project report.

Comment [PC13]: I hope Mark made a comment here. Volpe validates that the information received electronically to the information on the paper forms. The lab results are matched to the information on the FSDS. We do not analyze the results data from the labs.

Dust and soil samples will be analyzed by one of EPA's contract laboratories following Libby Asbestos Superfund Site protocols, including EPA's most recent protocols relating to QA/QC for the Libby Asbestos Superfund Site. As such, the QA/QC protocols followed by the laboratories are not within Tetra Tech's immediate control.

Laboratory QA/QC samples and standard protocols that the contract laboratory will perform for routine analysis will include the analysis of the following sample types:

- Preparation Duplicate Samples
- Preparation Laboratory Equipment Blanks (grinding and other equipment)
- Method Blank Samples
- Matrix Spike/Matrix Spike Duplicates
- Laboratory Control Samples/Laboratory Control Duplicates

- Standard Reference Material
- Surrogates

Volpe will enter data into the Libby V2 project database with a 100 percent QC of the data. This check will be performed daily on the data entered from the previous day.

Comment [PC14]: Not sure what you are referring to when you say that Volpe will do 100% QC on data entered the previous day. Most of the data is entered electronically. We QC the paper FSDS with the electronically entered data. We have validation checks build into the load programs for all electronic data. Concerning results, if the results load then we do not look at that data again to check for accuracy. That is not possible. The statement in your document is to vague.

7.3 AUDITS, CORRECTIVE ACTIONS, AND QA REPORTS

Field audits will be an integral part of Tetra Tech's field operations for the duration of the TAPE project. Field audits and corrective actions will be the responsibility of the Tetra Tech QA/QC manager. (See Section 2.0 and Table 2-1 for designated key project personnel.) The TAPE project report will include a discussion of data quality that will include a summary of field audit results. Copies of field audit forms will be provided as an appendix to the TAPE project report.

7.3.1 Field Inspections and Sampling Procedures Audits

The Tetra Tech QA/QC manager will be responsible for audits of TAPE field inspections and sampling procedures. Audits will be conducted daily for the first 5 days of inspection and sampling and at least biweekly for the duration of the TAPE. Audits will consist of the QA/QC manager or his designee attending a Troy property inspection and sampling event and observing the TAPE field team's activities. The field team will not be warned of the audit. The auditor will compare the field team's activities with the protocols provided in this work plan and the attached SOPs and evaluate compliance with the protocols using the audit form provided in Appendix E. After the audit, the auditor will provide the completed audit form to the DEQ and Tetra Tech project managers.

7.3.2 Corrective Action Procedures

The QA/QC auditor may use his or her discretion to provide immediate verbal feedback to the TAPE field team if necessary to ensure that deficiencies are fixed as quickly as possible. The Tetra Tech field team leader and QA/QC manager will review the report with the TAPE field team within 48 hours of the audit to correct any deviations or deficiencies. If any deviations or deficiencies were noted, the field team will be audited again within 1 week of the original audit to ensure that any deficiencies have been fixed.

If gross deficiencies are noted, the Tetra Tech QA/QC manager will determine whether re-inspection or re-sampling of any Troy properties is required. Re-inspection or re-sampling will be required only if the